

ATTACHMENT B

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) Apparatus An apparatus for the continuous tight heat-sealing of the longitudinal overlapping edges of tubular pieces of thermoplastic film, the thickness of which may be limited, produced by unwinding the film from a reel and advancing the ~~said~~ film longitudinally through a tubularizing mandrel ~~(4)~~, ~~which said apparatus is characterized in that it comprises~~ comprising:
_____ guide means (31,33) for guiding and for holding the said longitudinal edges of the tubularized film so that they the longitudinal edges overlap with an intimate and sufficiently distributed contact;
_____ and in that it comprises in an opposing position, a short distance from these guide means, a sealing head, disposed in an opposing position relative to, and a short distance from, the guide means, the sealing head (6) made in of a material with good mechanical strength, and with a low coefficient of friction in relation to the film to be sealed and with a high degree of thermal insulation, the sealing head adapted to direct at least one continuous jet of air or other gas which directs onto the edges of the film to be sealed at least one continuous jet of air or other gas, wherein the jet of air or other gas being heated to an appropriate temperature and at an appropriate pressure, and _____ which is connected by flexible or jointed means (38) to a fixed generator of hot compressed air (39) controlled by a suitable supply and control means, the generator connect to the sealing head via a flexible or jointed means, the generator being (40-44);

~~and which is mounted on means of approach and withdrawal (45),~~ such that, when the film advances, the ~~said sealing head is placed at the correct time~~ a short distance from the ~~said film, in an operation position to seal the firm, and already fully operational,~~ whereas when the film stops, ~~at the correct time the~~ sealing head is withdrawn from the ~~said film.~~

2. (Currently Amended) ~~The Apparatus~~apparatus according to ~~Claim claim~~ 1, in ~~which wherein the guide means for guiding the edges of the film to be sealed~~ longitudinally ~~comprise~~comprises a flat fixed opposing block (31) of suitable thickness, over which the ~~said edges of the film slide, this the~~ opposing block being appropriately rounded at its edges and being made in a suitable engineering polymer.

3. (Currently Amended) ~~The Apparatus~~apparatus according to ~~Claim claim~~ 2, in ~~which further comprising,~~ immediately downstream of the opposing block, (31) ~~is a~~ second guide means (33) that acts on the opposite face of the overlapping edges of the film from that on which the opposing block acts, ~~thereby this in order to ensure providing~~ constant contact between the film and the opposing block, the second guide means also ~~being made preferably in~~composed of a suitable engineering polymer.

4. (Currently Amended) ~~The Apparatus~~apparatus according to ~~Claim claim~~ 3, in ~~which wherein the said second guide means (33) consists of~~ comprises a roller positioned with its axis of rotation being ~~(133)~~ perpendicular to the direction of advance of the film.

5. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~Claim~~ claim 1, in ~~which~~ wherein the sealing head (6) is made in a suitable engineering polymer.

6. (Currently Amended) ~~The Apparatus~~ apparatus according to ~~Claim~~ claim 1, in ~~which~~ wherein the sealing head (6), viewed end-on in the direction of advance of the film to be sealed, is of an essentially rectangular shape, the sealing head has bevelled with the upper long sides bevelled, and ~~the~~ an upper face (34) of the sealing head has a footprint essentially the same as or ~~little~~ slightly different from the effective footprint of the ~~said~~ opposing block (31) over which the edges of the film to be sealed slide.

7. (Currently Amended) ~~The Apparatus~~ apparatus according to ~~Claim~~ claim 6, further comprising in which there is open, on the upper face (34) of the sealing head (6), at least one rectangular slit forming an opening on the upper face of the sealing head, the slit having (35) whose dimensions are correlated to the thickness and characteristics of the film to be sealed, the slit being oriented so that its greatest dimension is in the direction of advance of the film, the slit and communicating with a buffer chamber (36) of suitable volume formed inside the said sealing head and connected by branched ducts (136) to the flexible and heat-resistant pipe (38) flexible or jointed means leading from the generator (39) supplying hot compressed air.

8. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~Claim~~ claim 7, wherein the at least one rectangular slit comprises two rectangular slits open in which

~~there are open~~, on the upper face (34) of the sealing head (6), the two rectangular slits (35) symmetrically arranged to produce on the overlapping edges of the film two continuous longitudinal seals to ensure tightness.

9. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~Claim-claim~~ claim 7, characterized in that wherein, in order to seal barrier-effect stretch films with a thickness of about 40 microns, the rectangular ~~said~~ slits (35) in the sealing head (6) have a width of about 0.3 mm.

10. (Currently Amended) ~~Apparatus~~ The apparatus according to ~~Claim-claim~~ claim 9, wherein the rectangular ~~in which the~~ slits (35) in the sealing head (6) are separated by a distance of about 6 mm.

11. (Currently Amended) ~~The Apparatus~~ apparatus according to ~~Claim-claim~~ claim 7, characterized in that wherein in order to seal barrier-effect stretch films with a thickness of about 40 microns, the generator of hot compressed air is adapted to generate hot air which jets of hot air pass ~~passes~~ out through the rectangular slits (35) in the sealing head at a temperature of between 160°C and 180°C, ~~for example about 170°C~~, and at a pressure of between 0.1 and 0.8 bar, ~~for example about 0.2-0.4 bar~~.

12. (Currently Amended) ~~The Apparatus~~ apparatus according to ~~Claim-claim~~ claim 1, further comprising:

an air inlet with a pressure reducer, through which a source supplying compressed air is connect to the in which the generator of (39) supplying the hot compressed air; and is connected by its air inlet (239) to a source supplying compressed air, through a pressure reducer (40), while its
an electrical terminal (339) connectings the generator of hot compressed air to an electrical supply interface (41) controlled by a processor (42) which, by means of a heat sensors (43) and a pressure sensors (143), are adapted to senses sense the operating temperature and pressure, respectively, of the generator, which is connected to a programming and control unit which comprises the control means, the processor having (44) and which is equipped with an output terminal, (142) which in the event of an anomaly, sends a single to -tells the a general computer (29) of the packaging machine that the sealing head (6) mustneeds be rested and the emergency measures activated.

13. (Currently Amended) Apparatus The apparatus according to Claim-claim 12, in whichwherein the heat sensor (43) and the pressure sensor (143) of the hot compressed air generator (39) are located at the a discharge port (139) and at anthe inlet port (239), respectively, of the said generator.

14. (Currently Amended) Apparatus The apparatus according to Claim-claim 12, in whichwherein, in normal operating situations, the sealing head (6) works continuously at normal output and, when lowered to move it away from the film because the film is

stationary, screening means are activated to deflect the flow of hot compressed air emerging from the head.

15. (Currently Amended) ~~Apparatus~~The apparatus according to ~~Claim~~claim 14, in ~~which~~wherein the said-screening means ~~consist of~~comprises a horizontal cold or room-temperature compressed-air knife (151)-emitted by a short fixed bar (51), the said sealing head (6)-moving to a lower level than this bar when in the low or rest position.

16. (Currently Amended) ~~Apparatus~~The apparatus -according to ~~Claim~~claim 15, in ~~which~~wherein the short fixed bar (51) ~~that emits the air knife (151) to screen the air jets emitted by the sealing head (6) in the rest position is provided with~~has a nozzle (251) that emits a jet of cooling air onto the continuous seals produced by the said sealing head (6) in the an active position.

17. (Currently Amended) The apparatus according to claim 12, ~~in which there may be~~further comprising a deflector device located at ~~the~~a discharge port of the hot compressed air generator, ~~the (39)-a deflector device, convertible, which in phase with the up or down movement of the sealing head, to (6)-switches its state so as to supply the sealing fluid~~hot compressed air to the sealing head or deflect the hot compressed air it in other directions, ~~optionally to a recovery or recirculating circuit, respectively, respectively, whereby the whole being such that when the sealing head is raised, the sealing head~~ it is promptly fully operational.

18. (Currently Amended) The apparatus according to ~~Claim~~ claim 1, ~~in which~~ wherein the sealing head (6) is attached to ~~a~~ the moving part of a rectilinear actuator (45) mounted on a slide (46) that moves on guide means (47) parallel to the movement of the ~~said~~ actuator, the ~~said~~ slide being pushed in one direction by elastic means (48) and being movable in the opposite direction by means of an adjusting screw ~~(49)~~, all in such a way that it is possible to adjust the distance of the sealing head ~~(6)~~ from the film to be sealed when in ~~an~~ the active sealing position.

19. (Currently Amended) The apparatus according to claim 18, ~~in which~~ wherein the actuator (45) is a double-acting fluid-pressure cylinder with a non-rotating rod.

20. (Currently Amended) The apparatus according to ~~Claim~~ claim 18, ~~in which~~ wherein the rectilinear actuator (45) is of ~~a~~ the type controlled by a motor with electronic control of speed and phase, so that the sealing head (6) can be moved towards and away from the film with appropriate decelerations and accelerations correlated to the starting and stopping of the film.

21. (Currently Amended) The apparatus according to claim 1, further comprising:
_____ characterized in that in the application to a machine for packaging products in barrier-effect stretch film, of the type that comprises a horizontal film-tubularizing mandrel (1), for ~~with~~ the longitudinal edges of the thermoplastic film to be overlapped underneath the horizontal film-tubularizing mandrel ~~and to be~~ sealed tightly by special the sealing head means (6);

_____ ~~that comprises a fixed tubular guide (1') passing longitudinally through the said horizontal film-tubularizing mandrel in order to insert the product to be packaged in the thermoplastic film tubular packaging;~~

_____ ~~that comprises, upstream of the mandrel, means (27, 127, 28) for the controlled supply of the packaging thermoplastic film disposed, upstream of the horizontal film-tubularizing mandrel;~~

_____ ~~and that comprises, downstream of the said mandrel, gripping pincers, (7, 7')~~
~~disposed downstream of the horizontal film-tubularizing mandrel, for double sealing and intermediate cutting, the gripping pincers that alternate upstream and downstream of the tubular packaging with the product inside, to form a the said packaging with a prior longitudinal stretching operating,~~

_____ wherein:

_____ ~~the guide means comprises characterized in that the an opposing block fixed to an outer face of a bottom wall of the fixed tubular guide, the opposing block having a surface (31) on which the longitudinal edges of the thermoplastic film to be sealed are pressed and guided, and the guiding means further comprises a guide roller is mounted by its a spindle (133) to the lower flanges of the horizontal film-tubularizing said mandrel (1), the tubularizing mandrel having which has a large slot (32) through which the said opposing block passes and through which the overlapping edges of the film are visible and can be prepared by the sealing head (6); and~~

_____ ~~the means of approach and withdrawal comprises a lifting and lowering actuator (45) of which is controlled by the a main computer (29) in such a way that the sealing head is:~~

(a) ~~the said head is up while the film is advancing,~~
(b) ~~is synchronized to be down when the said film is stopped, and~~
(c) ~~is temporarily raised during the~~ a phase of longitudinal stretching of
each packaging, before the back of the packaging is closed.